



Natural Resources Conservation Service  
P.O. Box 2890  
Washington, D.C. 20013

---

**Date:** April 13, 2004

**Subject:** April 1, 2004 Western Snowpack Conditions and Water Supply Forecasts

The following information is provided for your use in describing climate and water supply conditions in the West as of April 1, 2004.

## **OVERVIEW**

March was extremely warm and very dry in the West. The warm temperatures ignited an early snowmelt and the negligible March precipitation across much of the West likely will likely prolong the current drought and further reduce projected water supplies in many areas.

Seasonal runoff forecasts for most western streams and rivers declined between 10% to 50% percent from the March 1 forecasts. The largest declines occurred in the Colorado, Snake and Great basins, where the warmest temperatures and the lowest March precipitation amounts have combined to dramatically reduce seasonal snowpacks. In Utah, and parts of surrounding states, drought is entering its fifth year. Dry soils will soak up much of the remaining snowmelt.

Reservoir storage for all western states except California is running below historic April 1st averages, with Arizona, Nevada, New Mexico, Utah and Wyoming reporting the largest percent of average storage deficits.

## **SNOWPACK**

The April 1, 2004 snowpack map reflects generally below average snowpacks westwide as shown in Figure 1. Snowpacks are less than 50% of average in most Southwest basins and in the southern and eastern slopes of the Rockies. In contrast, average snowpacks continue in the Cascades of Oregon and Washington. Historically, most western measurement sites continue to accumulate snowpack until April 1, but record warm March temperatures hastened early snowmelt. Many basins lost more than 20 percent of their expected April 1 snowpack (Table 1). Only the upper Columbia and upper Missouri headwater basins reported snow water content increases, but even their snowpack accumulation was below normal.

Central Alaska snowpacks are in the 70% to 110% range, western Alaska snowpacks vary from 50% to 70% of average, northern slope snowpacks range from 90% to 110% of average, and southern coastal basin snowpacks vary from 50% to 110% of average.

A map containing a daily update of the westwide snowpack may be obtained from the following URL - [http://www.wcc.nrcs.usda.gov/water/w\\_qnty.html](http://www.wcc.nrcs.usda.gov/water/w_qnty.html)

<b>March 2004 Snowpack Change Summary Table</b>			
State/Area	Statewide % of average SWE March 1, 2004	Statewide % of average SWE April 1, 2004	Statewide % of average SWE Change
Arizona	74	22	-51
California*	117	84	-33
Sierra/Tahoe	113	79	-34
Colorado	90	64	-26
Idaho	105	81	-25
Montana	93	78	-16
Nevada	118	64	-54
New Mexico	80	37	-43
Oregon	126	96	-30
Utah	109	70	-39
Washington	93	86	-7
Wyoming	91	71	-19
Provisional data, subject to change *Source, California Department of Water Resources SWE represents Snow Water Content			

Table 1. March 2004 Snowpack Change Summary Table

## MONTHLY AND SEASONAL PRECIPITATION

As mentioned previously, March precipitation was extremely low. As shown in Figure 2, the majority of the West reported less than 50% of average precipitation. Accordingly, seasonal precipitation for the period October 1, 2003 to March 31, 2004 is now lower for many basins in the Intermountain West and Rockies as shown in Figure 3. Only the Pacific Northwest, northern California, southern Nevada, and north central Montana are reporting above average seasonal precipitation. A majority of the Intermountain, Southwest and Rocky Mountain basins report below average seasonal precipitation ranging from 50% to 90% of average. Alaska precipitation is above average in most western basins and far southeastern basins and near to below average in central and southern Alaska.

## SPRING AND SUMMER STREAMFLOW FORECASTS

As of April 1, 2004, a majority of basins in the West will receive reduced streamflows. Most basins in the Pacific Northwest, northern Rockies of Montana and Idaho, northern Nevada, portions of Utah, and central California are forecast to receive spring and summer streamflows, ranging from 70% to 90% of average (Figure 4). The Intermountain West basins in Nevada, Utah, southern Idaho and western Colorado are forecast to receive spring and summer streamflows ranging from 50% to 70% of average. Many basins in Arizona, western New Mexico, the South Platte River in Colorado, the North Platte River in Colorado and Wyoming, and the Bear River of southeastern Idaho are forecast to receive well below average spring streamflows, less than 50% of average.

Western Alaska streamflows are forecast to be slightly below average and near average in central Alaska.

Specific state streamflow summaries can be obtained from the Internet location - <http://www.wcc.nrcs.usda.gov/cgi-bin/bor.pl>

## **RESERVOIR STORAGE**

Reservoir storage for all western states except California is running below historic April 1st averages, with Nevada, New Mexico, Utah and Wyoming reporting the largest percent of average storage deficits (Figure 5). Low storage values reflect carryover dryness of the continuing drought in the Intermountain West, Southwest, the southern Rockies and last water year's below average seasonal runoff.

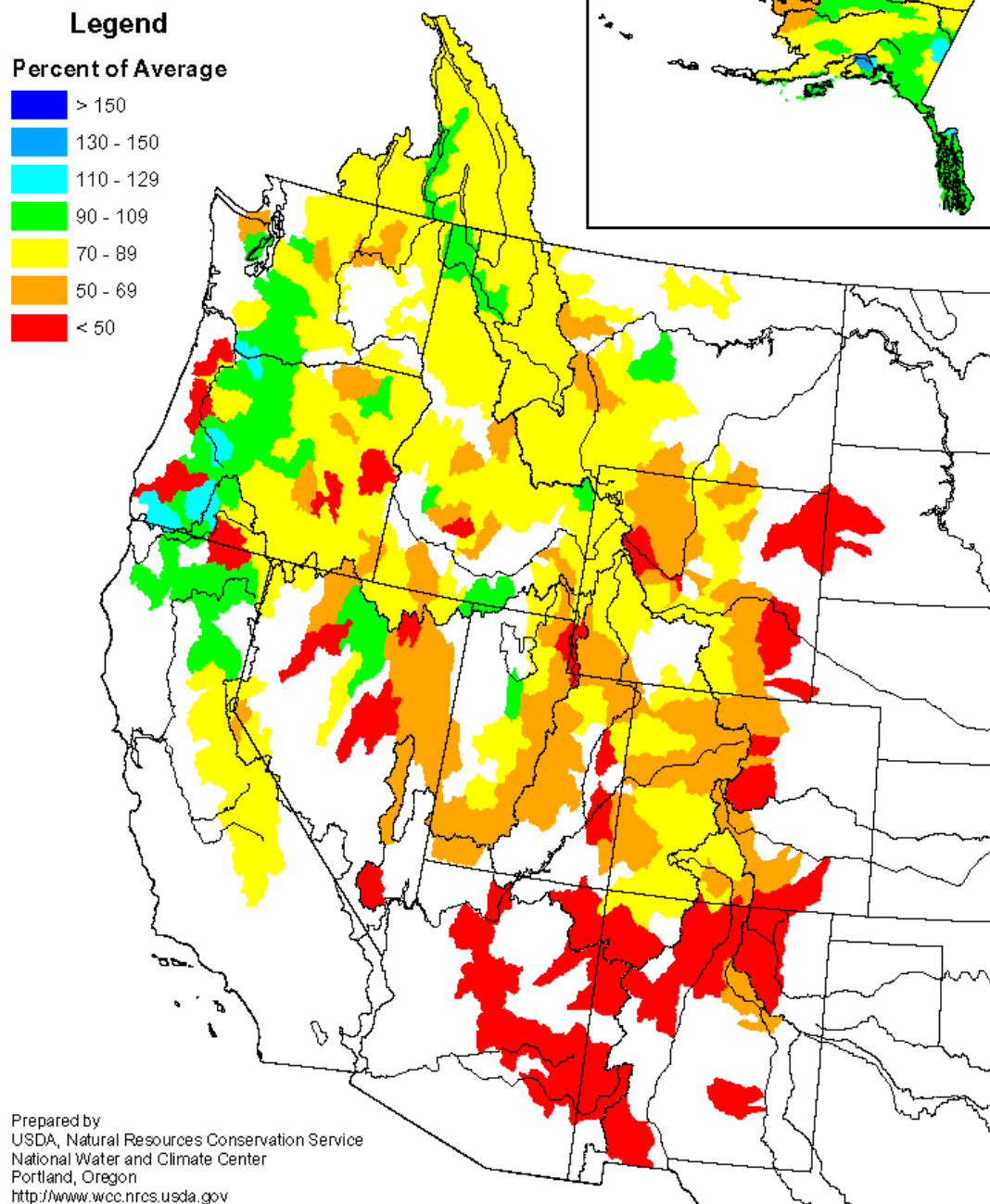
## **FOR MORE INFORMATION**

The National Water and Climate Center Homepage provides the latest available snowpack and water supply information. Please visit us at <http://www.wcc.nrcs.usda.gov>

/s/ RON MARLOW

Director, Conservation Engineering Division, Natural Resources Conservation Division,  
Washington, DC

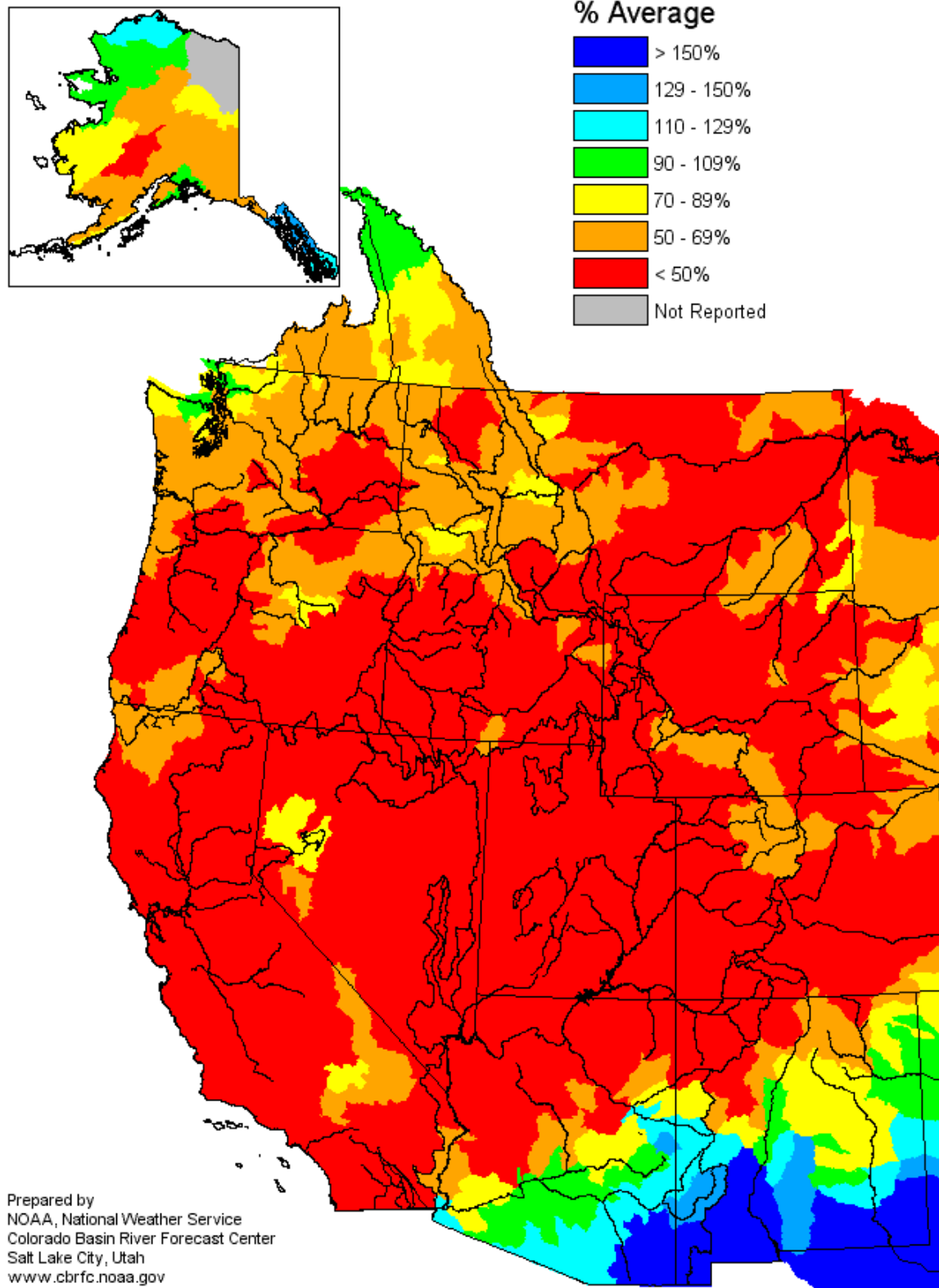
## Mountain Snowpack as of April 1, 2004



**Figure 1. Mountain Snowpack, April 1, 2004**

## Monthly Precipitation for March 2004

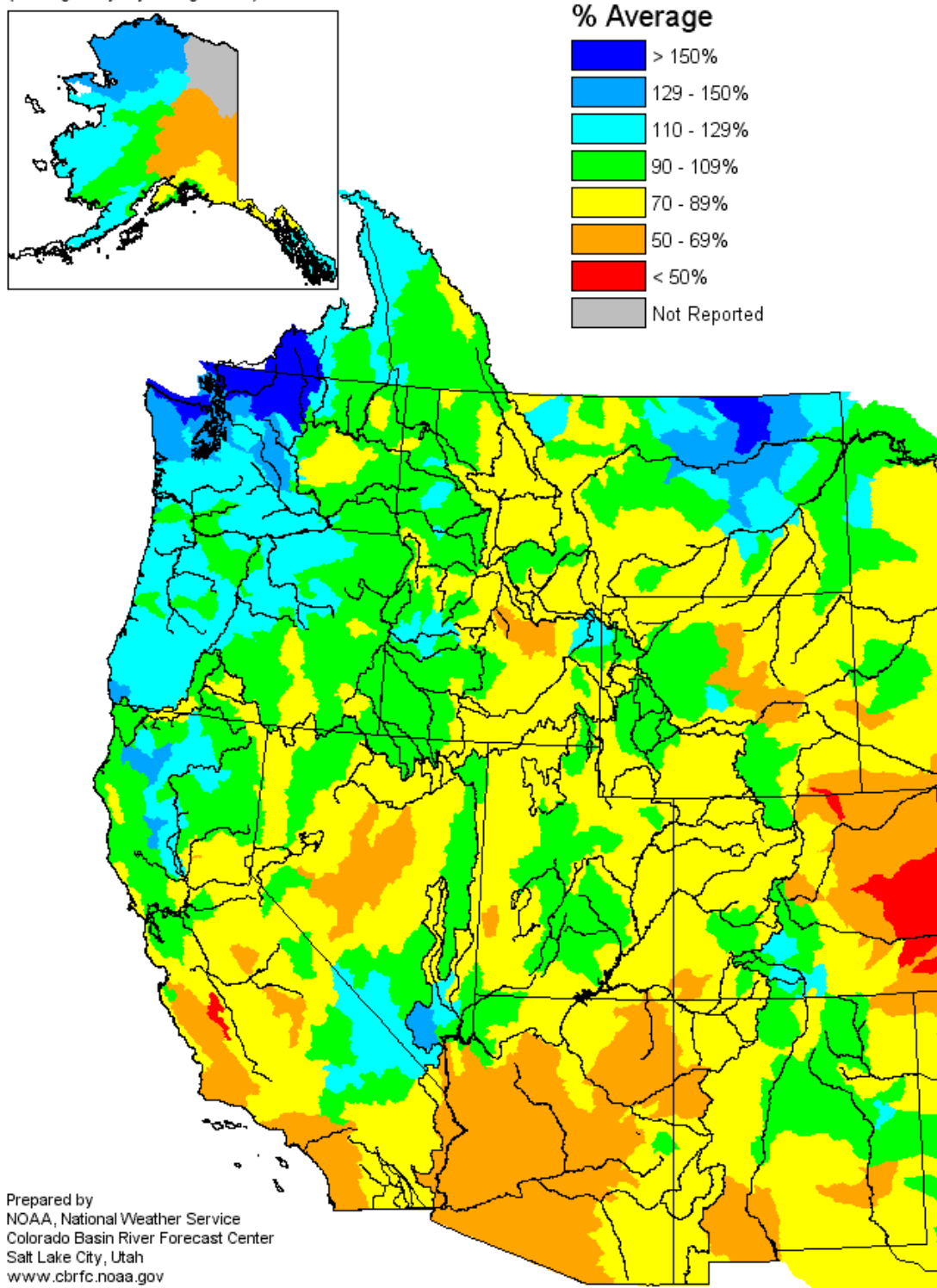
(Averaged by Hydrologic Unit)



**Figure 2. March 2004 Precipitation**

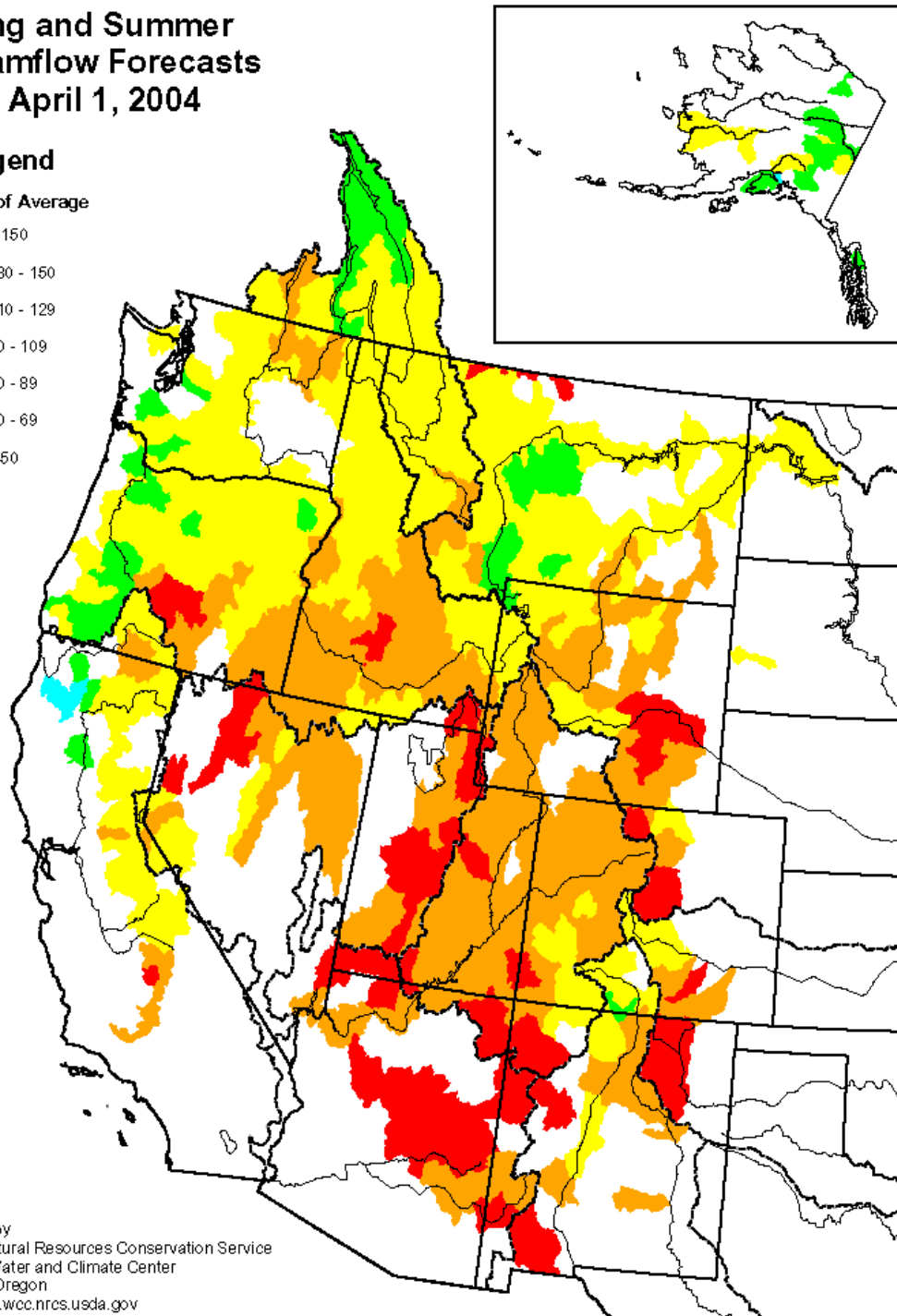
## Seasonal Precipitation, October 2003 - March 2004

(Averaged by Hydrologic Unit)



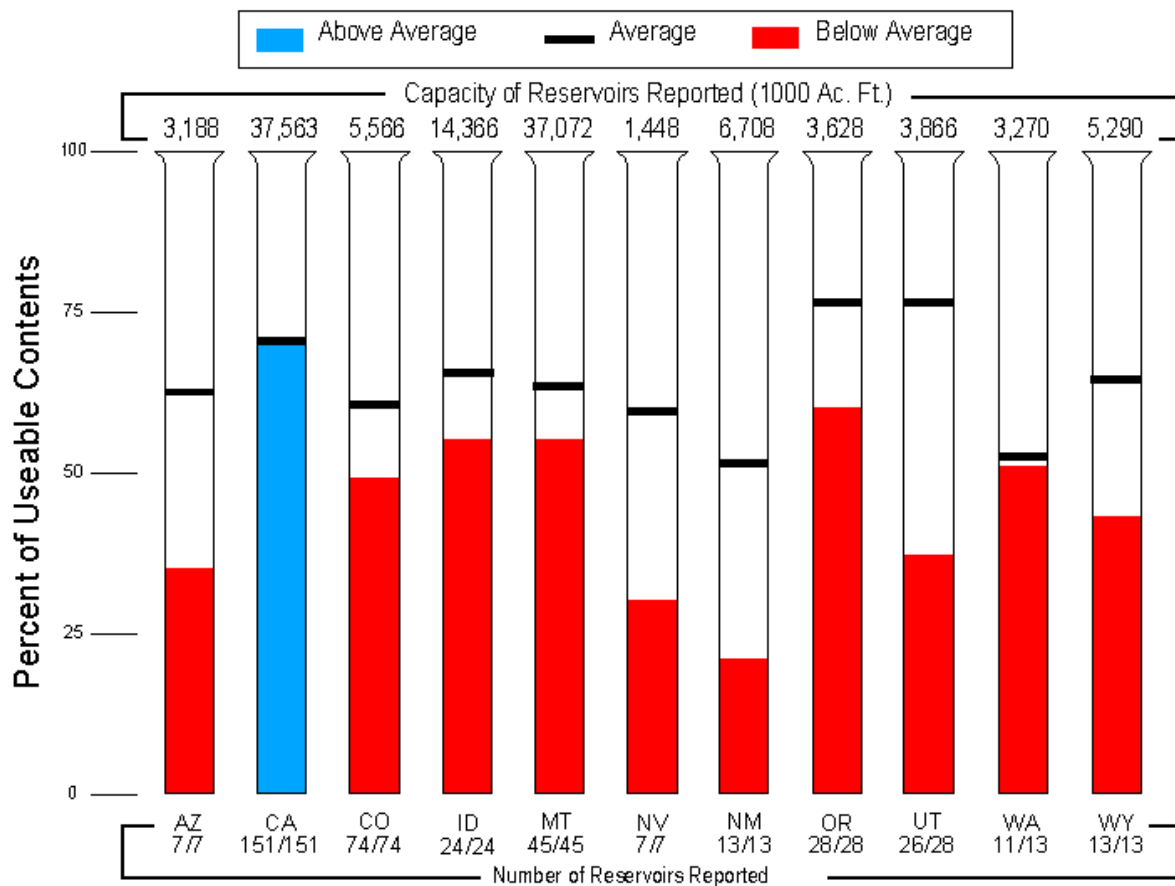
**Figure 3. Seasonal Precipitation, October 1, 2003 to March 31, 2004**

## Spring and Summer Streamflow Forecasts as of April 1, 2004



**Figure 4. Seasonal Water Supply Forecasts - April 1, 2004**

## Reservoir Storage as of April 1, 2004



Prepared by: USDA, Natural Resources Conservation Service, National Water and Climate Center, Portland, OR  
<http://www.wcc.nrcs.usda.gov>

**Figure 5. Reservoir Storage - April 1, 2004**